

CLAIMS:

1. An information-system/computer hardware device for enabling processing and tranceiving of information, exchanged between a protected host system and an external information source wherein the information is contained in a data set carried by a signal while preventing any undesirable data from reaching the protected host system, the information-system/computer hardware device comprising:

- a) means for processing and tranceiving information signal traffic including a means for processing the signals containing an initial data set so as to extract the information from that initial data set and to form a second data set containing the information and thereby screening out undesirable (including contaminated) data;
- b) means for connecting computer system peripheral devices thereto;
- c) means for controlling computer system peripheral devices connected to itself;
- d) means for interfacing to an expansion-bus of the host system in such manner as to operate as a conventional add-in card to the host system; and
- e) means for connecting external information source thereto and for controlling a flow of signal traffic between such external information source;

2. The information system/computer hardware device of claim 1 including means for providing and receiving operational integrity and performance information to other information system/computer hardware devices, thus permitting external functions to monitor the information-system/computer hardware operational performance;

3. The device of claim 1 in which said means for tranceiving includes a means for securely passing the extracted information to an authorized receiving domain, and a means for maintaining an optimum signal tranceiving rate of the authorized receiving domain;

4. The device of claim 3 in which said means for processing and tranceiving information signal traffic includes means for encypherment processing of signal traffic and tranceiving of such signal traffic, relative to the host system;

5. The device of claim 4 in which the means for processing and tranceiving information signal traffic includes a means for processing and tranceiving signals of a video subsystem of the host system, in such manner as to enhance a video subsystem of the host system;

6. A system including a plurality of information-system/computer hardware devices of claim 5, interconnected in such manner as to further enhance the video subsystem of the host system;

7. The device of claim 5 wherein said means for processing, means for tranceiving, means for connecting computer system peripheral devices, means for

controlling, means for interfacing, and means for connecting external information sources are embodied on a single-board-computer (or like device) modified to operate as a computer add-in card, residing on the expansion-bus of the protected/host system;

8. A system including a plurality of information-system/computer hardware devices of claim 7, which are interconnected in such manner as to enhance the function of the host system;

9. The system of claim 8, wherein each of the plurality of information-system/computer hardware devices includes means to receive and process operational and performance information from other devices of the plurality;

10. The system of claim 9, wherein at least one of the plurality of devices includes means to control other devices of the plurality (based on the operational and performance information received from the other devices of the plurality), and perform fault-tolerant type functions based on that information and the application objectives of the system;

11. The system of claim 7, wherein said means for processing, means for connecting, and means for tranceiving includes the means to tranceive multiple video and multimedia signals, process these signals into a composite signal, and transmit the

resulting composite signal, whereby the format of the resulting composite signal is compatible with multimedia display devices.

12. The system of claim 7, comprising a multiplicity of devices embodied as single-board-computers, each of which is modified to perform as an add-in card on the expansion-bus of a protected system/host, whereby each device of the multiplicity is a modified-single-board-computer (MSBC);

13. The system of claim 12, wherein the means for interconnecting individual devices of the multiplicity defines the function of the system, such that any member of (or subset of) the multiplicity may act as a peripheral system, communications-front-end system, or like module to another member of (or subset of) the multiplicity;

14. The system of claim 13, wherein each member of the multiplicity can host PCMCIA type devices, CardBus type devices, ASIC type devices, smart-card type systems, embedded micro-controller type devices, and like systems & devices as peripherals, thus enhancing the utility of the individual MSBC modules of the multiplicity;

15. The system of claim 13, wherein the means for interconnecting is embodied as a virtual-interconnect (independent of physical interconnection platforms such as a bus, a hub, a switch type system, a telephone type system, or like

interconnection platforms), as direct (device-to-device) signal paths, one-way signal paths, or combinations thereof, whereby the exact interconnection structure is optimized for a specific application or set of applications;

16. The system of claim 15, wherein the virtual-interconnect function can enable/disable or partially enable/disable any interconnection between modules of a MSBC multiplicity, automatically under application specific algorithmic type control processes, whereby such processes define the signal transmission characteristics of given interconnection signal paths of the multiplicity;

17. The system of claim 15, wherein the one-way interconnect data paths are embodied in such manner as to facilitate correct setup by users, thereby insuring the transmission of signals in the proper direction;

18. The system of claim 1, wherein (for IP-telephony applications) the means for tranceiving and means for processing include the means to buffer incoming signal-traffic, correct quality-of-service (QoS) type anomalies, and make the resulting signals securely available to the protected system in the manner of a local server, thus eliminating a high percentage of (QoS) type anomalies from incoming signal transmission.